

INSTRUCTIONS

- Answer **ALL** questions in section

CAT ONE (20 MARKS)

- a) What is a Computer Network? (2 Marks)
- b) Describe two ways to measure Computer Networks performance (2 Marks)
- c)
 - i. What is Network Topology? (2 Marks)
 - ii. Briefly describe three types of network topologies (3 Marks)
- d) Describe the role of the following devices in a computer network (2 Marks)
 - i. Router
 - ii. Switch
 - iii. Firewall
 - iv. Hub
- e) What are four difference between TCP and UDP (4 Marks)
- f) What is the Motivation behind NAT? (2 Marks)
- g) Describe the following types of NAT (5 Marks)
 - i. Static NAT
 - ii. Dynamic NAT
 - iii. Network Address and Port Translation (NAPT)
 - iv. Easy IP
 - v. NAT Server

CAT TWO (20 MARKS)

- a) Why Are Dynamic Routing Protocol Used? (2 Marks)
- b) What are two ways for Classifying Dynamic Routing Protocols and give examples (2 Marks)
- c) Describe the following technologies used to improve network bandwidth and reliability (2 Marks)
- i. Intelligent stack (iStack)
 - ii. Cluster switch system (CSS)
- d) Using a diagram, describe the Recommended Architecture for CSS, Eth-Trunks and iStack (2 Marks)
- e) Outline the roles of the following OSPF packets? (2 Marks)
- i. Hello
 - ii. Database Description
 - iii. Link State Request
 - iv. Link State DD
- f) If a packet routed by OSPF from RTA and destined for RTC's interface Loopback 1 attached to subnet 192.168.3.3/24, what is the cost (2 Marks)



- g) Outline TWO problems that might be caused by lack of standards in data communication networks
(2 Marks)
- h) Define Static IP and Dynamic IP addressing? (2 Marks)
- i) What is the role of a DHCP in a computer network (2 Marks)
- j) Describe four Issues Faced by Manual Network IP Parameter Configuration (2 Marks)
- k) Describe the DHCP Working Principle clearly showing the DORA process and the IP address renewal process (2 Marks)

